NVRO-160-01

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

James S. Gilmore, III
Governor

John Paul Woodley, Jr.
Secretary of Natural Resources

Northern Virginia Regional Office
13901 Crown Court
Woodbridge, VA 22193-1453
(703) 583-3800 *fax* (703) 583-3801
http://www.deq.state.va.us

Dennis H. Treacy
Director

Gregory L. Clayton
Regional Director

August 8, 2001

Mr. Richard S. Weber
Director
Office of Solid Waste Management, Loudoun County
1 Harrison Street, S.E.
P.O. Box 7000
Leesburg, VA 20175-7000

Location: Loudoun County
Reg. No.: 72348
AIRS ID No.: VA-107-0135

Dear Mr. ~~Weber~~ Rick:

Attached is a permit to modify and operate a Municipal Solid Waste Landfill with Gas Collection and Control System in accordance with the Commonwealth of Virginia State Air Pollution Control Board's Regulations for the Control and Abatement of Air Pollution. Loudoun County Landfill (Solid Waste Permit No. 1) is being modified to expand the existing landfill into Phase III (Cells A, B and C). This permit supersedes your State Operating Permit dated November 15, 1999.

The permit contains legally enforceable conditions. Failure to comply may result in a Notice of Violation and civil penalty. Please read all permit conditions carefully.

In the course of evaluating the application and arriving at a final decision to approve the project, the Department of Environmental Quality (DEQ) deemed the application complete on April 23, 2001.

This approval to operate shall not relieve the Office of Solid Waste Management, Loudoun County of the responsibility to comply with all other local, state, and federal permit regulations.

The Board's Regulations as contained in Title 9 of the Virginia Administrative Code 5-170-200 provides that you may request a formal hearing from this case decision by filing a petition with the Board within thirty days after this case decision notice was mailed or delivered to you. 9 VAC 5-170-180 provides that you may request direct consideration of the decision by the Board if the Director of the DEQ made the decision. Please consult the relevant regulations for additional requirements for such requests.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have thirty days from the date of service of this decision (the date you actually received this decision or the date on which it was mailed to you, whichever occurred first), within which to initiate an appeal of this decision by filing a Notice of Appeal with:

Dennis H. Treacy, Director
Department of Environmental Quality
P.O. Box 10009
Richmond, Virginia 23240-0009

In the event that this decision is served on you by mail, three days are added to the period in which to file an appeal. Please refer to Part Two A of the Rules of the Supreme Court of Virginia for information on the required content of the Notice Of Appeal and for additional requirements governing appeals from decisions of administrative agencies.

If you have any questions concerning this permit, please call the regional office at (703) 583-3840.

Sincerely,

Charles D. Forbes
Regional Permit Manager

Attachment: Permit

cc: Director, OAPP (electronic file submission)
Manager, Data Analysis (electronic file submission)

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STATIONARY SOURCE PERMIT TO MODIFY AND OPERATE

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution,

Office of Solid Waste Management, Loudoun County
1 Harrison Street, S.E., P.O. Box 7000
Leesburg, VA 20175-7000
Registration No.: 72348
County-Plant No.: 107-0135

is authorized to modify and operate a

Municipal Solid Waste Landfill with Gas Collection and Control System

located at

20933 Evergreen Mills Road, Leesburg, VA. 20175

in accordance with the Conditions of this permit.

Approved on: August 8, 2001

for Dennis H. Treacy
Director

Permit consists of 14 pages.
Permit Conditions 1 to 29.
Source Testing Report Format.

PERMIT CONDITIONS - the regulatory reference or authority for each condition is listed in parentheses ( ) after each condition.

APPLICATION

1. Except as specified in this permit, the Loudoun County Landfill is to be operated as represented in the permit application dated February 26, 2001 and additional information dated April 20, 2001. Any changes in the permit application specifications or any existing facilities which alter the impact of the facility on air quality may require a permit. Failure to obtain such a permit prior to construction may result in enforcement action.
(9 VAC 5-50-390 and 9 VAC 5-80-10 K 4)

PROCESS AND CONTROL REQUIREMENTS

2. **Equipment List** – The fill areas of the landfill to be constructed consist of the following:

   - Phase III, including Cell A (33,542 Mg), Cell B (181,285 Mg) and Cell C (213,872 Mg)

   Components and equipment of the existing landfill consists of:

   - Old Fill, opened in 1971 and closed in 1985;
   - Phase I, opened in 1984 and closed in 1991;
   - Phase II, opened in 1987 and closed in 1992;
   - Phase IIA/IIB, opened in 1992 and remaining open; and
   - Gas collection and control system including a LFG Specialties enclosed flare rated at 900 scfm maximum capacity

   (9 VAC 5-80-10 A of State Regulations)

3. **Design Capacity** - The design capacity of the MSW landfill is 1,555,418 megagrams (1,714,526 tons). A change in the design capacity may require a permit to modify and operate. If a modification or a change in density occurs which increases the design capacity to a value that equals or exceeds 2.5 million megagrams and 2.5 million cubic meters, the permittee shall submit a title V operating permit application within twelve months after the date construction commenced for the modification or change in density which allowed the design capacity to equal or exceed 2.5 million megagrams and 2.5 million cubic meters.

(9 VAC 5-40-420, 9 VAC 5-50-390 and 9 VAC 5-40-5800 C of State Regulations)

4. **Landfill Gas (LFG) Collection and Control System Design Plan** – The permittee shall prepare and submit a LFG collection and control system design plan, which describes the management of LFG to be generated by waste placed within Phase III of the landfill. The design plan shall be prepared by a professional engineer and be submitted to the Air Permit Manager, Northern Virginia Regional Office within one year of the effective date of this permit. The design plan shall conform to the specifications for an active collection system as specified in Condition 5 of this permit. The design plan shall include any proposed alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, record keeping or reporting provisions of this permit.
(9 VAC 5-40-5820 C(2)(a) of State Regulations)

5. **LFG Collection and Control System: Design and Operational Standards** The permittee shall operate a LFG collection and control system which:

a. Is designed to handle the maximum expected gas flow rate from the entire area of the landfill;

b. Is designed to meet the specifications for siting and construction of an active collection system as defined in 9 VAC 5-40-5824;

c. Collects gas from each area, cell or group of cells in which initial solid waste has been in place for a period of:

1. 5 years or more if active, unless quarterly surface monitoring in and along the active area show no exceedances of the surface methane standard provided in Condition 5 i below; or

2. 2 years or more if closed or at final grade;

d. Collects gas at a sufficient extraction rate;

e. Is operated with each wellhead under negative pressure except as provided in 9 VAC 5-40-5822(b).

f. Is operated with each interior wellhead in the collection system having a landfill gas temperature less than 55°C and having either:

1. A nitrogen content less than 20 percent, as determined by EPA Method 3C; or

2. An oxygen content less than 5 percent, as determined by EPA Method 3A.

g. Is designed to minimize off-site migration of subsurface gas;

h. Either reduces NMOC of the collected gas by 98 weight-percent or reduces the outlet concentration to less than 20 ppmv, dry, as hexane, at 3 percent oxygen, as determined by EPA Method 25C or EPA Method 18.

i. Maintains the methane concentration at the surface of the landfill at less than 500 ppmv above the background level.

(9 VAC 5-40 5820 C(2)(b) and 9 VAC 5-40-5822 of State Regulations)

6. **Dust Emission Control** - Unless otherwise specified, dust emission controls shall include the following or equivalent as a minimum:

a. Dust from grading, cell construction, waste compaction, application of daily cover, wood waste chipping operations, storage piles and traffic areas shall be controlled by wet suppression or equivalent (as approved by the DEQ) control measures.

b. All material being stockpiled shall be kept moist by wet suppression or equivalent method (as approved by DEQ), including growth of vegetation, to control dust during storage and handling, or be covered to minimize emissions.

c. Dust from haul roads shall be controlled by wet suppression and prompt removal of dried sediment resulting from soil erosion and dirt spilled or tracked onto paved surfaces within the landfill.

d. Reasonable precautions shall be taken to prevent deposition of dirt on public roads and subsequent dust emissions. Dirt spilled or tracked onto paved surfaces shall be promptly removed to prevent particulate matter from becoming airborne.

(9 VAC 5-40-90 and 9 VAC 5-40-5830 of State Regulations)

7. **Test/Monitoring Ports** - The enclosed flare and associated piping shall allow for emissions testing upon reasonable notice at any time, using appropriate methods. Test ports shall be provided when requested at the appropriate

locations or in accordance with the applicable performance specification (Ref. 40 CFR Part 60, Appendix B).
(9 VAC 5-50-30 F of State Regulations)

OPERATIONAL STANDARDS

8. **Operation of Landfill -** The Loudoun County Landfill shall be operated in accordance with 9 VAC 5-40 Article 43 of the State Regulations.
(9 VAC 5-40-5800 A of State Regulations)

9. **Operation of LFG Control System** - The landfill gas control system shall be in operation at all times when the gas collection system is in operation.
(9 VAC 5-40-5822 E of State Regulations)

10. **Removal of LFG Collection and Control System** - The collection and control system may be shut down or removed provided the following conditions are met:

    a. The landfill shall be a closed landfill as defined in 9 VAC 5-40-5810 and under the requirements of 9 VAC 20-80-250E;

    b. The collection and control system shall have been in operation a minimum of fifteen years; and

    c. Following the procedures specified in 9 VAC 5-40-5860 C, the calculated NMOC gas produced by the landfill shall be less than 23 megagrams per year on three successive test dates. The test dates shall be no less than ninety days apart, and no more than 180 days apart.

(9 VAC 5-40-5820 C(2)(e) and 9 VAC 5-40-5860 C of State Regulations)

EMISSION LIMITATIONS

11. **Visible Emission Limit for Enclosed Flare** - Visible emissions from the enclosed flare shall not exceed 5 percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 30 percent opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown and malfunction. Provided EPA Method 22 reports no observable emissions, except for a maximum of five minutes during any two consecutive hours, a visible emissions evaluation using EPA Method 9 is not required.
(9 VAC 5-50-20 and 9 VAC 5-50-260 of State Regulations)

CONTINUING COMPLIANCE DETERMINATION

12. **Performance Tests** - Every five years, from the date of the initial performance test, or upon request by the DEQ, the permittee shall conduct additional performance tests to demonstrate compliance with the emission limits or control efficiency requirements contained in Condition 5 h of this permit. The testing shall be performed in accordance with the conditions set forth in 9 VAC 5-40-5860 E. The details of the tests shall be arranged with the Air Compliance Manager, Northern Virginia Regional Office. The permittee shall submit a test protocol at least thirty days prior to testing. Two (2) copies of the test results shall be submitted to the Air Compliance Manager, Northern Virginia Regional Office within forty-five days after test completion. An extension, if requested, shall be considered on a case-by-case basis. The test report shall conform to the test report format enclosed with this permit.
(9 VAC 5-40-30 and 9VAC 5-40-5860 E of State Regulations)

MONITORING

13. **LFG Collection System and Surface Monitoring Requirements** - The operation of the gas collection system and landfill surface shall be monitored as follows:

    a. The following items shall be monitored each month:

        1. Gauge pressure, each well.

        2. LFG temperature, each active well.

        3. Nitrogen concentration or oxygen concentration, each active well.

    b. In order to meet the requirement of Condition 5 i, the surface of the landfill shall be monitored for methane in the following manner:

        1. Using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications of 9 VAC 5-40-5850 F.

        2. For the existing landfill cells, on a quarterly basis and consistent with the pattern provided in the Methane Surface Monitoring Design Plan dated June 18, 1998, or any approved updates.

3. For the cells in Phase III, methane surface monitoring shall begin within the first quarter after initial waste is placed in any cell of Phase III. Surface monitoring shall be conducted on a quarterly basis along the perimeter of the new cells and along a pattern which traverses the cells at 30-meter intervals.

4. In accordance with section 4.3.1 of Reference Method 21 of Appendix A of 40 CFR Part 60, except that the probe inlet shall be placed within 5 to 10 centimeters of the ground.

5. Monitoring shall be conducted during typical meteorological conditions.

(9 VAC 5-50-410, 9 VAC 5-40-5850 E, and 9 VAC 5-40-5870 C of State Regulations)

14. **LFG Control System Monitoring Requirements** - The following shall be monitored for the gas control system:

a. Periods of flare inactivity. Flare inactivity is defined as periods when the combustion temperature is less than 1076 °F (the auto-ignition temperature of methane).

b. The combustion temperature of the enclosed flare shall be continuously monitored, and recorded no less than every 15 minutes.

(9 VAC 5-50-410, 9 VAC 5-40-5870 D and E of State Regulations)

CORRECTIVE ACTIONS

15. **Positive Gauge Pressure at Well Head** - If positive gauge pressure exists at any well head during the monthly monitoring required in Condition 13, action shall be initiated to correct the exceedance within five days, except under the following conditions: when there is a fire or increased well temperature; when an alternative pressure limit was established in the design plan as a result of the use of a geomembrane or synthetic cover; and directly after shutdown of a well. If a negative pressure cannot be achieved without excess air infiltration within fifteen days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative schedule may be submitted to the Air Compliance Manager, Northern Viriginia Regional Office for approval.

(9 VAC 5-40-5850 C(3) of State Regulations)

16. **Exceedance of Temperature or Oxygen Concentration Standards at Active Well Head** - If conditions at an active well head equal or exceed 55 °C (131°F) or 5% oxygen concentration during the monthly monitoring required in Condition 13, action shall be initiated to correct the exceedance within five days. If correction of the exceedance cannot be achieved within fifteen days from the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative schedule may be submitted to the Air Compliance Manager, Northern Virginia Regional Office for approval.
(9 VAC 5-40-5850 C(3) of State Regulations)

17. **Exceedance of Landfill Surface Methane Emission Standard** - If surface emissions of methane equal or exceed 500 parts per million above background during the quarterly monitoring required in Condition 13, actions shall be taken as follows:

    a. Maintenance to the landfill cover or adjustment to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made. The location shall be re-monitored within ten days of detecting and exceedance.

    b. If re-monitoring of the location shows a second exceedance, additional corrective action shall be taken and the location shall be re-monitored again within ten days of the second exceedance.

    c. For any location which shows an exceedance three times within a quarterly period, a new well or other collection device shall be installed within 120 days of the initial exceedance. An alternative remedy to correct the exceedance and an alternative time line to complete the remedy may be submitted to the Air Compliance Manager, Northern Virginia Regional Office for approval.

    d. Any location that initially showed an exceedance, but has a methane concentration less than 500 parts per million above background after the first or second ten-day re-monitoring shall be re-monitored one month from the initial exceedance. If the one-month re-monitoring shows no exceedance, no further monitoring is required at that location until the next

quarterly monitoring period. If the one-month re-monitoring shows an exceedance, then follow the steps in (b) and (c) above.

As long as the specified actions are taken, the exceedance(s) are not a violation of the operational requirements of this permit or 9 VAC 5-40 Article 43. (9 VAC 5-40-5850 E(4) of State Regulations)

RECORD KEEPING

18. **On-Site Records** - The permittee shall maintain records of all emissions data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be agreed upon with the Air Compliance Manager, Northern Virginia Regional Office. These records shall include, but are not limited to:

a. Current maximum design capacity, current amount of refuse in place, and year by year refuse accumulation rates.

b. Total annual landfill gas flow to the enclosed flare, recorded monthly, as the sum of each consecutive twelve-month period.

c. Description, location, amount, and placement date of all nondegradable refuse including asbestos and demolition refuse placed in landfill areas which are excluded from landfill gas collection and control.

d. Installation date, location and construction details of all newly installed vents, wells and flares.

e. Map or plot showing each existing and planned well in the gas collection system with each well uniquely identified.

f. Maximum expected gas flow rate.

g. Results of quarterly surface monitoring demonstrating compliance with Condition 13 b.

h. Monthly well field results demonstrating compliance with Condition 13 a.

i. Monthly gas control results demonstrating compliance with Condition 14.

j. Records of all three hour periods during which the average combustion temperature of the enclosed flare was more than 28 °C (82 °F) below the

average combustion temperature of the enclosed flare as determined during the most recent performance test.

k. Specific corrective action(s) taken pursuant to Condition 15, 16, and 17, including date corrective action(s) was taken, date re-monitoring occurred and re-monitoring result(s).

l. A copy of the initial report dated January 30, 2000 required in Condition 19 of the superseded permit dated November 15, 1999.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.
(9 VAC 5-40-40, 9 VAC 5-40-50, 9 VAC 5-50-410, and 9 VAC 5-40-5890 of State Regulations)

REPORTING

19. **Annual Compliance Report** – An annual compliance report, covering the previous calendar year, shall be submitted to the Air Compliance Manager, Northern Virginia Regional Office by January 30th of each year and shall contain the following:

a. Value and length of time for exceedance of gauge pressure, temperature and oxygen or nitrogen concentrations monitored under 9 VAC 5-40-5870 C;

b. Description and duration of all periods when the control device was not operating but while gas was being collected for a period exceeding 1 hour and length of time control device was not operating;

c. All three hour periods during which the average combustion temperature of the enclosed flare was more than 28 °C (82 °F) below the average combustion temperature of the enclosed flare as determined during the most recent performance test.

d. All periods when the collection system was not operating in excess of 5 days;

e. The location of each exceedance of the 500 parts per million surface methane concentration, and the concentration recorded at each location for which an exceedance was recorded as provided in 9 VAC 5-40-5822 H;

f. The date of installation and the location of each well or collection system expansion added pursuant to 9 VAC 5-40-5850 E(4)(e) or added as part of the expansion of the collection system associated with Phase III.

(9 VAC 5-50-410 and 9 VAC 5-40-5880 & 5890 of State Regulations)

20. **Closure Report** - The permittee shall submit a closure report to the Air Compliance Manager, Northern Virginia Regional Office, within thirty days of the date the landfill stopped accepting municipal solid waste.
(9 VAC 5-50-410 and 9 VAC 5-40-5880 F of State Regulations)

21. **Equipment Removal Report** - The permittee shall submit an equipment removal report to the Air Compliance Manager, Northern Virginia Regional Office, at least thirty days prior to the removal or cessation of operation of the control equipment.
(9 VAC 5-50-410 and 9 VAC 5-40-5880(G) of State Regulations)

NOTIFICATIONS

22. **Initial Notifications** – The permittee shall furnish written notification to the Air Compliance Manager, Northern Virginia Regional Office of the following:

a. The actual date on which construction of the flexible liner for Phase III of the landfill commenced within thirty days after such date.

b. The actual date on which construction of Phase III of the landfill is completed within thirty days after such date.

c. The actual date on which initial municipal solid waste is accepted within thirty days of such date.

d. The anticipated date of performance tests of the enclosed flare as required by Condition 12 postmarked at least thirty days prior to such date.

(9 VAC 5-50-50 of State Regulations)

GENERAL CONDITIONS

23. **Right of Entry** - The permittee shall allow authorized local, state and federal representatives, upon the presentation of credentials:

a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;

b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;

c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and

d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.
(9 VAC 5-170-130)

24. **Violation of Ambient Air Quality Standard** - The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated.
(9 VAC 5-20-180 I)

25. **Maintenance/Operating Procedures** - The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to air pollution control equipment, monitoring devices and process equipment which affect such emissions:

a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.

b. Maintain an inventory of spare parts.

c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.

d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request. (9 VAC 5-50-20 E and 9 VAC 5-170-160)

26. **Permit Suspension/Revocation** - This permit may be suspended or revoked if the permittee:

a. Knowingly makes material misstatements in the application for this permit or any amendments to it;

b. Fails to comply with the conditions of this permit;

c. Fails to comply with any emission standards applicable to the equipment listed in Condition 2;

d. Causes emissions from this facility which result in violations of, or interferes with the attainment and maintenance of, any ambient air quality standard;

e. Fails to operate this facility in conformance with any applicable control strategy, including any emission standards or emission limitations, in the State Implementation Plan in effect on the date that the application for this permit is submitted;

f. Fails to operate this facility in accordance with the application for this permit or any amendments to it; or

g. Allows the permit to become invalid.
(9 VAC 5-80-10 K)

27. **Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the Northern Virginia Regional Office of the change in ownership within 30 days of the transfer.
(9 VAC 5-80-10 O)

28. **Registration/Update** – Annually the permittee will be required to provide information to the DEQ or the Board, which will be used to maintain the currency of the stationary source emission database. The information requested may include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact. The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.1-340 through 2.1-348 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the State Air Pollution Control Board Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.
(9 VAC 5-170-60 and 9 VAC 5-20-160)

29. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.
(9 VAC 5-170-160)

SOURCE TESTING REPORT FORMAT

Cover
1. Plant name and location
2. Units tested at source (indicate Ref. No. used by source in permit or registration)
3. Tester; name, address and report date

Certification
1. Signed by team leader / certified observer (include certification date)
* 2. Signed by reviewer

Introduction
1. Test purpose
2. Test location, type of process
3. Test dates
* 4. Pollutants tested
5. Test methods used
6. Observers' names (industry and agency)
7. Any other important background information

Summary of Results
1. Pollutant emission results / visible emissions summary
2. Input during test vs. rated capacity
3. Allowable emissions
* 4. Description of collected samples, to include audits when applicable
5. Discussion of errors, both real and apparent

Source Operation
1. Description of process and control devices
2. Process and control equipment flow diagram
3. Process and control equipment data

* Sampling and Analysis Procedures
1. Sampling port location and dimensioned cross section
2. Sampling point description
3. Sampling train description
4. Brief description of sampling procedures with discussion of deviations from standard methods
5. Brief description of analytical procedures with discussion of deviation from standard methods

Appendix
* 1. Process data and emission results example calculations
2. Raw field data
* 3. Laboratory reports
4. Raw production data
* 5. Calibration procedures and results
6. Project participants and titles
7. Related correspondence
8. Standard procedures

* Not applicable to visible emission evaluations.